UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,234	02/27/2004	Francois Abel	CH920040010US1	7973

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EXAMINER
WEIDNER, TIMOTHY J

ART UNIT	PAPER NUMBER
2619	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/789,234	ABEL ET AL.
	Examiner	Art Unit	
	Timothy J. Weidner	2619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>25 April 2008</u>.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>18-20,23-34 and 38-42</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>18-20,23-34 and 38-42</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>21 November 2007</u> is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1.   A request for continued examination under 37 CFR 1.114, including the fee set

forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this

application is eligible for continued examination under 37 CFR 1.114, and the fee set

forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action

has been withdrawn pursuant to 37 CFR 1.114. Applicant's submissions filed on April

18 and 25, 2008 have been entered.

Response to Amendment

2.   An amendment and a supplemental amendment were submitted, 4/18/08 and

4/25/08 respectively, and considered herein.

3.   Claims 1-17, 21, 22, and 35-37 are cancelled.

4.   Claims 18-20, 23-34, and 38-42 are pending.

Response to Arguments

5.   Applicant's arguments filed April 18, 2008, regarding objection to the drawings,

have been fully considered but they are not persuasive. The labels are not descriptive

enough. The drawings mainly consist of rectangular boxes, and contain very few

symbols commonly used in the art as specified under 37 C.F.R. 1.84(n).

Drawings

6.   The drawings are objected to because the unlabeled rectangular boxes in figures

1, 2, 6, 7, and 8 should be provided with descriptive text labels. Corrected drawing

sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to

avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

7.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8.   Claims 38-42 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed,

had possession of the claimed invention. Claim 38, line 22, recites the limitation

"resetting the final matching information".

9.   Claim 40 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply

with the written description requirement. The claim(s) contains subject matter which

was not described in the specification in such a way as to reasonably convey to one

skilled in the relevant art that the inventor(s), at the time the application was filed, had

possession of the claimed invention. Lines 1-2 specify "keeping each intermediate

matching information in the same stage". Lines 2-3 specify "the final matching

information is obtained from a different stage in each time slot".

10.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

11.   Claims 18-20, 23-34, and 40 are rejected under 35 U.S.C. 112, second

paragraph, as being indefinite for failing to particularly point out and distinctly claim the

subject matter which applicant regards as the invention.

12.   Claim 18 recites the limitation "the last stage" in lines 15-16. There is insufficient

antecedent basis for this limitation in the claim. Claims 19, 20, 23, 24 fail to resolve this

deficiency.

13.   Claims 23 and 30 recite the limitation "the number of requests that are pending"

in lines 3 and 2 respectively. There is insufficient antecedent basis for this limitation in

the claims.

14.   Claims 24 and 31 recite the limitation "the position" in lines 2-3 and 2

respectively. There is insufficient antecedent basis for this limitation in the claim.

15.   Claim 25 recites the limitation "the input" in line 5. There is insufficient antecedent basis for this limitation in the claim. Claims 26-34 fail to resolve this deficiency.

16.   Claim 26 recites the limitation "The packet switching device" in line 1. There is insufficient antecedent basis for this limitation in the claim.

17.   Claim 26 recites the limitation "preceding intermediate" in line 3. It is unclear what is meant by this limitation. It is currently interpreted as "preceding intermediate matching information".

18.   Claim 28 recites the limitation "preceding intermediate information" in line 6. It is unclear what is meant by this limitation. It is currently interpreted as "preceding intermediate matching information".

19.   Claim 29 recites the limitation "the partial matching information" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim. It is currently interpreted as "the preceding intermediate matching information".

20.   Claim 33 recites the limitation "the number of pending requests" in line 3. There is insufficient antecedent basis for this limitation in the claim.

21.   Regarding claims 39 and 40, lines 2-3 and 2-3 respectively, it is unclear how there are multiple "final matching information" because the limitations depended upon, i.e. claim 38, lines 5-6, step 1a, appear to specify a single final matching information whereas any matching information other than the one final matching information is termed "intermediate matching information".

22.   Regarding claim 40, in lines 1-2, "keeping each intermediate matching information in the same stage" is unclear. It can not be determined what is meant, whether the intermediate matching information is not passed outside of a stage, or whether it simply means storing it in a stage. Further, "a different stage in each subsequent time slot" in line 3 is unclear because it can not be determined how different the stage is, for example, whether different only from those used for adjacent time slots, or from those used for several time slots away.

23.   Claim 40 recites the limitation "the same stage" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

24.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

25.   Claims 18-20, 23-34, and 38-42 are rejected under 35 U.S.C. 102(e) as being anticipated by Calamvokis et al. (US 6,856,622 B1).

26.   Regarding claim 18, Calamvokis teaches providing fanout (a plurality of requests) to transmit data packets from a plurality of input ports (devices) (column 11, lines 8-12), wherein each request corresponds to one of a plurality of input queues of one of the devices (column 4, lines 29-35) and includes an output port identifier for transmitting

data packets to one of a plurality of output ports (column 12, lines 6-9). Scheduler chips

120 (allocation stages) receive the requests in parallel and at the same time (column

11, lines 11-13), wherein an output of each stage is connected to an input of a

subsequent stage (column 12, lines 9-16; passing grant information to subsequent

scheduler chips). The scheduler chips create partial matching information for particular

input/output pairs and pass this information to subsequent scheduler chips (column 12,

lines 9-16), and at the last stage after passing through all the scheduler chips, a final

(complete) matching information is created (column 12, lines 57-63). The complete

matching information from the last scheduler chip (last stage) is communicated, by way

of grant (permission), to the input (column 12, lines 57-63).

27.   Regarding claim 19, 39, and 41, Calamvokis teaches the scheduler chips

(stages) perform partial matching for particular input/output pairs and pass this

information to subsequent scheduler chips (column 12, lines 9-16).

28.   Regarding claims 20, 27, and 42, Calamvokis teaches the scheduler subsystem

106 (allocation unit) dequeues packets of an input port to a corresponding output port

based on the grant (column 13, lines 17-27).

29.   Regarding claims 23 and 30, Calamvokis teaches the scheduler chip (prefilter)

deciding to (determines) to schedule (forward) the grants (modified information) (column

12, lines 40-50) based on a dependence distance DD compared to a number of pending

requests in the queue of each scheduler chip (column 9, lines 22-24).

30.   Regarding claims 24 and 31, Calamvokis teaches the scheduler chip (prefilter) decides to (determines) forward the grant based to subsequent schedulers that are in the same column and row (based on the position of the stage) (column 12, lines 10-16).

31.   Regarding claim 25, Calamvokis teaches an array of scheduler chips 120 (allocation stages) (column 9, lines 47-50). Fanout chip 122 (request unit) provides requests to each scheduler chip in parallel and at the same time (column 11, lines 11-13), where the requests specify the output ports (output port identifier) (column 12, lines 6-9). The scheduler chips 120 (grant unit) provide grants (matching information) to the input devices (column 12, lines 9-10 and 61-62), wherein each scheduler chip performs matching based on the requests to create grants (generate the matching information) which are a matching of the requesting devices to the output ports (column 12, lines 10-17).

32.   Regarding claim 26, Calamvokis teaches the scheduler chips (stages) perform the matching iteratively based on the received requests and preceding intermediate matching information (column 10, lines 8-15).

33.   Regarding claim 28, Calamvokis teaches the scheduler chip is also an allocator and a prefilter, i.e. it does the same functions. The scheduler chip creates a grant (performs the matching) (column 12, lines 9-10) after consideration (forwarding) of the request (column 12, lines 6-8).

34.   Further, regarding the forwarding of modified information to the allocator, Calamvokis teaches a grant (which is based on the request and the preceding matching information) involving input and output ports being removed from consideration and this

information (modified information) being forwarded to other scheduler chips (column 12, lines 10-17).

35.   Regarding claim 29, Calamvokis teaches the scheduler chip decides to (determines) forward the grants downstream to each scheduler chip in turn based on its arbitration which was based on the previous grant matching information (based on a current matching in the preceding matching information) (column 10, lines 13-16).

36.   Regarding claim 32, Calamvokis teaches the scheduler chip (allocation stage, postfilter unit) grants and marks an input/output pair as no longer available (filters out one match in the matching information) (column 12, lines 9-16).

37.   Regarding claim 33, Calamvokis teaches a dependence distance DD (counter) is calculated in the fanout chip (request unit) and used by each scheduler chip corresponding to particular inputs and outputs (column 9, lines 22-35).

38.   Regarding claim 34, Calamvokis teaches fanout chip 122 (selection unit) selectively provides requests to each scheduler chip (allocation stage) in parallel and at the same time (column 11, lines 11-13).

39.   Regarding claim 38, Calamvokis teaches scheduler chips 120 (allocation stages) receiving fanout requests in parallel (operating in parallel a plurality of allocation stages) and at the same time arbitrates (compute a plurality of matching informations) (column 11, lines 11-13), where matching is computed over a plurality of successive timeslots (column 10, lines 51-54). Intermediate matching informations are output after each run through the scheduler chip array (column 12, lines 57-63), and a final matching

information is output after several runs through the scheduler chip array (column 12, lines 57-63).

40.   Further, Calamvokis teaches in each time slot providing fanout (a plurality of requests) to transmit data packets from a plurality of input ports (devices) (column 11, lines 8-12), wherein each request corresponds to one of a plurality of input queues of one of the devices (column 4, lines 29-35), and includes an output port identifier for transmitting data packets to one of a plurality of output ports (column 12, lines 6-9). Scheduler chips 120 (allocation stages) receive the requests in parallel and at the same time (column 11, lines 11-13).

41.   The scheduler chips create intermediate matching information for particular input/output pairs and pass this information (preceding intermediate matching information) to subsequent scheduler chips which do the same (column 12, lines 9-16), and at the last stage after passing through all the scheduler chips (based on requests and a preceding matching information), a final matching information is created (column 12, lines 57-63).

42.   The scheduler chips create intermediate matching information (a new intermediate matching information) for particular input/output pairs and pass this information (which becomes the preceding intermediate matching information) to subsequent scheduler chips which do the same, i.e. create new intermediate matching information based on the preceding intermediate matching information and the requests received (column 12, lines 9-16).

43.   The final matching information of input/output pairing from the last scheduler chip

(last stage) is communicated, by way of grant (permission), to the input (column 12,

lines 57-63). Said communication of grant is the same as resetting the final matching

information, or alternatively, the calculation of second final matching information after

another run through the array may be construed as a resetting of the final matching

information (column 12, lines 57-63).

44.   Regarding claim 40, Calamvokis teaches each scheduler chip is dedicated to

specific input/output pairs (keeping the intermediate matching information in the same

stage) (column 9, lines 56-63). The order of the scheduler chips (stages) is changed in

subsequent timeslots (column 10, lines 51-54), the last stage differs in each subsequent

time slot (column 10, lines 56-59; #4 and #5), and the final matching information is

output from the last stage after each run through the scheduler chip array (final

matching information is output from a different stage in each subsequent timeslot)

(column 12, lines 57-63).

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Timothy J. Weidner whose telephone number is (571)

270-1825. The examiner can normally be reached on Monday - Friday, 8:00 AM - 5:00

PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Chau T. Nguyen can be reached on (571) 272-3126. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Timothy J Weidner/
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